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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/754,718	01/12/2004	Hidekazu Kikuchi	247609US90XCONT	1366

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EXAMINER

BERMAN, JACK I

ART UNIT PAPER NUMBER

2881

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/754,718

Applicant(s)

KIKUCHI, HIDEKAZU

Examiner

Jack I. Berman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/557,156.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/12/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This dependent claim appears to add a limitation claiming that before the object is supported by the support members (the only "supporting" referred to in parent claim 1), it can be supported by the support members. This does not make any sense. The examiner could not determine what Applicant was trying to claim in this claim, and therefore could not compare this claim to the prior art.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11, 13, 14, 18, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoppe. Hoppe discloses a method for transporting an object (object carrier 18) to or from a stage (rod 20) comprising supporting one surface of the object on a plurality of support members (grippers or jaws 25, 26, 27, 28), loading the object onto the stage, and withdrawing the plurality of support members to the other side of the object (see line 39 in column 5 through line 11 in column 6). Lines 27-59 in column 4 teach how object stage 6 and rotatable insert 13 can be used to move the cartridge containing the support members 25-28. This would inherently move all the support members in a common plane perpendicular to the vertical axis along which the object is moved. This movement includes rotation around an axis perpendicular to the moving plane. The support members also move, either simultaneously or sequentially, in linear movements in directions approaching/withdrawing from the object (see line 39 in column 5 through line 11 in

column 6). At lines 44-46 in column 5, Hoppe teaches that apertures may be provided in the object to receive the support members. At lines 12-15 in column 5, Hoppe teaches that means are provided to raise the object cartridge 14, including support members 25-28 that form part of it, so that the support members are lifted clear of the object, i.e. the support members from one "surface side" of the object carrier 18 to the other.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoppe. While Hoppe mentions, at lines 44-46 in column 5, apertures to receive the ends of the grippers 25-28, the patent does not mention the orientation of these apertures. It would have been an obvious design choice having no functional significance to provide these apertures in the direction that moves the grippers from one side of the object to the other. In this case, the apertures would have to be big enough to permit the grippers to move so that they could grab and release the object. With regards to claim 28, while Hoppe does not specify any particular driving means to move the support members from one side of the object to the other, it would have been obvious to a person having ordinary skill in the art to provide a cover around this driving means to prevent lubricants used by the driving means from contaminating the chamber containing the specimen.

Claims 16, 29-32, and 34-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoppe in view of Auslander et al. While the Hoppe apparatus is disclosed as being used to

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transport an object in an electron microscope, Auslander et al. teaches, at line 66 in column 6 through line 5 in column 7, teaches that the stages used to position objects in an electron microscope can also be used to position objects or masks in lithography equipment, including electron beam lithography systems. Such systems inherently transcribe patterns of first objects, the masks, onto second objects. It would therefore have been obvious to a person having ordinary skill in the art to use Hoppe's positioning system to position the mask in a lithography system wherein recess 23, with its plate shaped portion 32 in the bottom of the recess to act as a mounting surface, serves as the exposure position. At lines 36-37 in column 10, Hoppe teaches to use light-optical interference methods (i.e. interferometers) to monitor the position of the stage as it moves in a two-dimensional plane from the loading position to the observation (or exposure) position. It would have been obvious to a person having ordinary skill in the art to provide extra interferometers if the change of position of the stage exceeds the range of one of the interferometers.

Claims 15, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoppe and Auslander et al. as applied to claims 29, 34, 35, 36, and 38 above, and further in view of Faure et al. Faure et al. teaches that lithography masks usually comprise a circuit pattern formed in a layer 26 and a support ring 24 that acts as a frame to rigidly support the mask. It would therefore further have been obvious to a person having ordinary skill in the art to use Hoppe's positioning system to position Hoppe's mask in the manner suggested by Auslander et al.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoppe and Auslander et al. as applied to claims 29, 34-36, and 38 above, and further in view of Okino.

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Okino teaches that during the transcription of the pattern of a first object onto a second object in a lithography system, the stage holding the first object and the second should be synchronously moved in predetermined directions within planes perpendicular to the optical axis of the system in order to increase the accuracy of the system. It would have been obvious to a person having ordinary skill in the art to apply the teachings of Okino to the Auslander lithography method using the mask transporting system disclosed by Hoppe.


Claims 27 and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not suggest arranging an elastic member on the contact portion of Hoppe's support members or a mark detection system on the side of the optical system at the transportation system of the Hoppe apparatus to detect a positioning mark on the object before it is loaded onto the stage.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack I. Berman whose telephone number is (571) 272-2468. The examiner can normally be reached on M-F (8:30-6:00) with every second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jack I. Berman
Primary Examiner
Art Unit 2881

jb
5/17/04